

INTERNET USE AND SOCIABILITY IN THE UCLA DATA: A SIMPLIFIED MCA ANALYSIS

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ABSTRACT [\(Data Available\)](#)

In this simplified analysis of the UCLA data, an MCA multivariate approach is used to test the relation between Internet use and sociability using both behavioral and attitudinal data in the UCLA surveys. These analyses indicate little consistent evidence of decreased social behavioral contact with friends, relatives and household members among heavier Internet users, after age, education, income, race, gender and marital status are taken into account. However, there is significant evidence of more sociable attitudes (lower loneliness and alienation) among Internet users after adjustment for these same demographic factors in both UCLA surveys. Increasingly sociable attitudes are found among heavier Internet users in one survey, but not the other.

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The preceding article by members of the UCLA survey team has examined the relevant items in the 2000 UCLA study, "Surveying the Digital Future," for their relation to Internet use employing conventional and advanced regression modeling. Although these are powerful tools to use to examine this relation, they have the disadvantage of attempting to sum up the relation in terms of a single regression coefficient. For many variables, however, that may mask complex and subtle relations—such as curvilinear relations and singular departures for one or two categories of a particular variable.

For that reason, the technique of Multiple Classification Analysis (MCA) was developed by social survey analysts Andrews, Morgan and Sonquist (1973). The technique was part of the original Osiris statistical package at the University of Michigan, but as that package became outdated some decades ago, it became incorporated as part of the ANOVA program of the Statistical Package for the Social Sciences (SPSS).

The important value of MCA (as illustrated in the analyses of the GSS Internet data in this issue) is that it allows analysts to calculate averages for all groupings of a variable in a multivariate analysis. If there are 7 age groups, MCA does provide a summary regression coefficient (*eta*) describing the overall relation between age and a dependent variable of interest (say sociability), but more importantly the particular sociability scores for each of the seven age categories. Moreover, it allows the analyst not only to see such age group differences in scores originally (as they are found in the survey on a simple bivariate basis), but the average scores for these age groups *after adjustment* for the fact that the different age groups differ on education, income and other background predictors of sociability. In this way, then, it shows what the sociability score would be for that age group if all other things were equal—if all groups had equivalent education, income and the like.

It is not enough then to know that there are significant age differences in sociability, but in what age groups are differences most apparent. Perhaps, sociability increases steadily with age, as people grow older their social networks cumulate as they get to know more and more people. Perhaps, it declines steadily with age, as people get settled into a home life that they do not like to venture out of. Perhaps, sociability peaks in certain ages, say for people in their twenties before they get married—or after retirement in their sixties. The value of MCA is that it allows the analyst to see which of these or other patterns characterize different age groups, not just that the age groups are different. Likewise, in the case of marital status, do all unmarried groups (divorced, separated, widowed or never married) socialize less (or more) than married people—or are widowed people different from other unmarried groups? The technique of "dummy variable regression" is often employed to the same end, but that technique is far more cumbersome and difficult to describe and execute than MCA (as for example in Appendix B of article 7 in this issue) .

In the analyses that follow, then, the MCA technique is employed to analyze the UCLA data from a more “qualitative” perspective than that afforded by traditional regression techniques.

METHODOLOGY OF THE UCLA SURVEY

In designing “Surveying the Digital Future,” the primary goal of the UCLA Center for Communication was to create a representative national sample of users and nonusers. Telephone interviews were conducted by a commercial research firm in Los Angeles with 2096 individuals in households throughout the country, using a national Random Digit Dial (RDD) telephone sample. It employed an Equal Probability Selection Method (EPSEM) sampling procedure that gave every telephone number in the 50 states and the District of Columbia an equal chance of being selected.

Once the EPSEM random sample of telephone numbers was generated, those households that had listed residential telephone numbers were first sent an advance letter informing them of their household’s selection for the project. Second, an interviewer called that number and spoke to a person in the household 18 years or older in order to obtain a roster of all household members. Then a computer system (CFMC Survent CATI) randomly selected one individual from among those age 12 and over in the household to be the interviewee from that household. If the randomly selected individual was between 12 and 17 years of age, the interviewer asked a parent or guardian for permission to interview the child.

Once that household member was randomly selected, only that individual was eligible to complete the interview. Eight call attempts were made to complete an interview, and households that refused twice were not contacted again. Interviews were conducted in English and in Spanish and took place between April and June of 2000.

The collected responses were compared to U.S. Census Bureau data to ensure that the sample was representative of the U.S. population in terms of geographical distribution, race, ethnicity, age, sex, education, and household income. The sample was close on all of these demographic categories except for education; the lower educated were somewhat under sampled, so to correct for this under sampling, the data were weighted by education.

Sociability Questions: The two sets of questions related to sociability that were asked of UCLA respondents in 2000 are shown in Appendix A. The first set of questions are “objective” or behavioral, asking (1) about *hours per week* socialized with other members of one’s household or with friends, and (2) the *number* of friends or neighbors one knew; these questions were repeated in 2001. The second set of questions are “subjective” attitudes, asking whether respondents felt isolated or alienated; only a few of these questions are repeated in 2001 as described more fully below.

MCA RESULTS

The MCA results related to these two sets of UCLA sociability indicators are shown in Tables 1–4. Tables 1 and 2 deal with the social behavioral questions (in years 2000 and 2001 respectively), and Tables 3 (2000) and 4 (2001) with social attitude questions. The MCA entries in Tables 1–4 are shown in relation to the mean or average value for the entire sample, negative signs indicating below average values, 0 indicating exactly average and no sign above average values. These averages are after control for the other predictors shown in the table using the MCA procedure described above. Thus in column 1 and row 1 of Table 1, the average estimate for time spent with other household members was 28.7 (or 29) hours per week across the entire sample. In the next row of the table the entry of 0 indicates that respondents aged 18–24 spent that same time as the average of 28.7 hours per week (after MCA adjustment for the other predictors in Table 1); the 1.1 figure for those age 25–34 indicates that group spent 1.1 hours more than the 28.7 hours, or almost 30 hours per week with other household members.

The correlations at the bottom of each set of figures show the degree of association between each background variable and the social variable identified to be in that column—first before and then after MCA adjustment. In the case of age, the original correlation was .15, and the MCA adjusted correlation is .13—both of which are statistically significant at the .05 level. However, these age differences are not monotonic, that is they do not increase or decrease consistently with age as noted below. (An example of a nearly monotonic relation is found for the next background variable in Table 1, namely education, which increases from –4.8 (24 hours) for those with least years of school completed to –.8 (28 hours) for the next highest group to +1.0 (30 hours) for the next two groups to +3.4 (32 hours) for the highest group; the +1.0 (30 hours) for the next to highest group represents the only departure from a truly monotonic relation, since it is not larger than the group below it in hours of socializing).

The main variable of interest—Internet use—is shown as the final set of row variables at the bottom of Tables 1–4. As discussed below, the first clear example of monotonic differences for this variable only appears in Table 3—where scores on the depression scale drop from 1.0 above average (27.8) for nonusers to exactly average (26.8) for lightest Internet users to .3 below average for the next heavier group of users (26.5) to .9 below average (25.8) for the next heaviest user group to .9 below average (25.9) for the group using the Internet most—at ten or more hours per week. For ordinal scale variables like age, education, income and Internet use, this condition of monotonicity is an important criterion to judge whether the relationship as measured by the correlation coefficient *eta* is statistically significant—that is beyond the usual 95 percent confidence level used in social science research. If the correlation is significant at that 95 percent level, it is noted with a “Sig.”; if it is not significant, it is noted with an “NS.”

BEHAVIORAL QUESTIONS***YEAR2000 (TABLE 1)***

In terms first of the *behavioral* indicators of social interaction in the UCLA study, socializing with other household members, the first row entry in Table 1 shows that adult respondents in the 2000 UCLA national sample estimated that they spent about 29 hours a week in such contact (respondent answers above 70 hours were recoded to 75 hours to reduce the affects of these outliers on the analysis). The second set of rows shows differences in this 31 hours by age—ranging from 29 hours for those aged 18–24 to 30 hours for those aged 25–34 to 30 hours also for those age 35–44. The figure drops to below 24 hours for those age 45–54 but goes back up to 28 hours for those age 55–64 and peaks at 34 hours for those in the retirement ages of 65 and older. The range between 24 (ages 45–54) to 34 (ages 65+) hours is statistically significant—but this difference occurs for nearly adjacent age groups and thus does not increase nor decrease in any systematic (or monotonic) fashion from younger ages. Therefore, age per se is not a useful predictor of household socializing time.

In contrast, and as noted above, the next set of figures for education differences do consistently show progressive rises with education (from 24 for those with the least education to 32 hours for those with a graduate education); and this eight-hour range is just large enough to be statistically significant. Income differences are also significant, but (as with age) the rise is not systematic across categories, so income is not a reliable predictor either. Not surprisingly, the next set of figures for married people do show that they have more contact with household members, but mainly in terms of the 7–8 hour greater figure over widowed and never married people. The estimated household contact times for whites are 6 hours greater than for "other" races and almost 5 hours greater than for blacks. Finally, the 3.4 greater hours of socializing for women than men is neither notable nor significant.

In terms of the major variable of interest, Internet use time—shown at the bottom of Table 1—the differences are also insignificant, even though (the above predictors adjusted) nonusers do report highest socializing time. It can be seen that the 29 hours of household socializing time of heaviest users (10+ hours) is only one hour less than for nonusers, with lowest household contact time (28 hours) for those who are intermediate users of the Internet still only about an hour lower than average.

Friends Socializing Time: Friends socializing time of 9.5 hours (shown in the second column of Table 1) is only about a third as large as the 29 or so hours of household socializing time in the first column. The relation of friends' time with age is curvilinear, with those aged 18–34 and 65 and older reporting above

TABLE 1: DIFFERENCES IN YEAR 2000 UCLA SOCIABILITY BEHAVIORS BY DEMOGRAPHICS

	Household Socializing	Friends Socializing Time	Number of Friends	Number of Neighbors	Volunteer Time
TOTAL SAMPLE (n=1774)	28.7 Hours	9.5 Hours	11.1 Friends	9.5 Neighbor	2.5 Hours
Age					
18-24 (180)	0	2.4	-1.1	-3.5	-1.2
25-34 (441)	1.1	1.0	-1.7	-2.8	-.6
35-44 (395)	1.2	-.2	-.7	.6	-.4
45-54 (363)	-5.1	-1.9	-1.0	1.0	-.4
55-64 (217)	-.8	-1.0	1.8	3.1	.5
65-74 (270)	5.3	.4	4.5	2.3	2.5
Correlation	.15 -->.13 Sig	.15 -->.12 Sig	.15 -->.15 Sig	.23 -->.19 Sig	.18 -->.23 Sig
Education					
HighS Inc. (165)	-4.8	1.1	-.7	-2.4	-1.1
High Grad (687)	-.8	1.0	-1.2	-1.0	-.1
Some Coll (508)	1.0	-.4	1.2	1.0	.3
Coll Grad (340)	1.0	-1.2	.3	1.2	.1
Grad Schl (164)	3.4	-1.3	1.4	.7	.6
Correlation	.06 -->.09 NS	..09-->.09 Sig	.08 -->.08 Sig.	.10 -->.10 Sig	.09 -->.08 Sig
Income					
\$0-14.9K (249)	3.3	-1.5	-.6	0	.3
\$15-49.9K (847)	1.9	.3	-.1	-.1	0
\$50-99.9K (484)	-4.0	-.2	.5	-.6	-.1
\$100K+ (139)	1.0	1.1	.3	1.6	.2
No Data (145)	.2	.7	-.5	.8	.2
Correlation	.10-->.12 NS	.10 -->.06 NS	.03 -->.03 NS	.10 -->.05 NS	.05 -->.03 NS
Marital Status					
Married (988)	1.5	-1.2	-.4	1.2	.1
Divorced (207)	-2.5	1.2	.5	-2.8	.3
Separated (40)	-1.7	0	.1	-3.1	.2
Widowed (168)	-6.0	-.8	-.5	.5	-.9
Never Married (375)	-5.8	2.8	1.2	-1.0	-.1
Correlation	.12 -->.12 Sig	.16 -->.15 Sig	.08 -->.05 NS	.19-->.13 Sig.	.08 -->.07 NS
Race					
White (1528)	1.0	.3	.5	.3	0
Black (160)	-3.7	-1.1	-2.9	0	.9
Other (176)	-5.2	-1.2	-1.5	-2.2.	-.3
Correlation	.11 -->.10 Sig	01 -->.05 NS	09 -->.08 Sig.	12-->.06 NS	.07 -->.07 NS
Gender					
Men (513)	-1.9	.8	2.7	.1	.1
Women (717)	1.5	-.6	-2.1	-.1	-.1
Correlation	.05 -->.06NS	.07 -->.06NS	.10 -->.11Sig	.00 -->.01 NS	.01 -->.02 NS
Internet Use					
None (657)	1.2	.7	.2	.3	-.5
0.1-1.9 (245)	-1.1	.3	-.6	.4	.4
2-4.9 Hrs (277)	-.5	-1.4	-.3	.8	.2
5-9.9 Hrs (265)	-1.2	-.1	.5	-.5	.7
10+ Hrs (420)	.1	-.2	-.1	-.9	-.1
Correlation	.05-->.04 NS	.06 -->.06 NS	.04 -->.02 NS	.07-->.05 NS	.08 -->.08 NS

Entries are deviations from the total sample mean. Correlations are for before and after MCA adjustment. Sig = Eta correlation significant at .05 level after MCA adjustment. NS = Not Significant.

average times and those aged between 25 and 54 below average. The difference between the 12 hours for the 18–24 year olds and 7.5 hours for those aged 45–54 may be statistically significant, but the differences across other age groups are only about an hour per week, so that age again is not a useful predictor.

Estimated hours of friend contact time are lower among those with more education (but not more income); and outside of the 30 percent higher time for never-married people, marital status differences are minimal. Similarly for the slightly lower figures for minority groups and for women, the differences in friend contact time seem inconsequential.

Moreover, no significant variation is found by extent of Internet usage, with the lower than average figure from moderate Internet users being the only difference greater than an hour a week. As with household contact time, these Internet use differences in time with friends are neither consistent nor significant.

Number of Friends: UCLA 2000 respondents were also asked about the number of friends they had, with the average being about 11 persons. On this question, older people estimated they had significantly more friends than did younger people, with those aged over age 65 estimating almost 16 friends vs. about 10 for those under age 45. Education differences were significant and positive, with college graduates reporting more friends than average; and although higher income respondents also reported more friends, the differences were rather small. The lower number of friends among married and widowed—and minority—respondents were not significant, but the difference between the 13 friends of males vs. the 9 friends for females was statistically significant. The number of friends was again unrelated to the hours of Internet use.

Number of Neighbors: The estimated number of 9.5 neighbors known by first name is just slightly lower than the number of 11 friends; and as with friends, numbers of close neighbors rose rather consistently with age, from six for those aged 18–24 to nearly 12 for those over age 55. Similarly, numbers of neighbors known are higher among the college educated and married people; but the differences by income, marital status, race and gender are not significant.

Again, no significant differences are found by Internet use, although lighter and non-Internet users claim to know about one neighbor more than the heaviest users.

Volunteer Time: UCLA respondents estimated doing about 2.5 hours a week of volunteer work, and that rose significantly with age—to 5 hours among those 65 and older. The higher figures for the college educated were also significant. Differences by income, marital status, race and gender were also not significant.

Moreover, volunteer hours among Internet users were slightly larger than for nonusers—but still neither significant nor consistent.

Year 2001 (TABLE 2)

About 1300 of these same 2000 UCLA respondents were interviewed again in 2001 as part of a panel study, along with a new sample of about 700 respondents. The first four sociability questions in Table 1 were repeated (volunteer time was not) and showed very similar averages to the 2000 sample and generally similar correlates, as shown in Table 2.

This behavior again varied irregularly (although significantly) with age, with highest numbers of hours again reported in the over 65 age category and lowest among 45–54 year olds. Education and income differences were neither consistent nor significant, while the lower figures among widowed and never married respondents—and minority and male respondents—were again significantly lower.

Above average socializing time was again found among heaviest Internet users, but the higher times among nonusers was not replicated. The overall differences, moreover, were again not significant.

Friends Socializing Time: Time with friends was again significantly higher among 18–24 year olds, picking up again after age 65. Differences by education and income were irregular and not significant. The never married were again more active in time with friends than married respondents; men again reported (here about two hours) more time with friends than women.

As with household socializing time, Internet users generally reported slightly more time with friends than nonusers, but with enough notable exceptions that cast doubt on there being any meaningful connection.

Number of Friends: As in the UCLA 2000 survey, people over age 55 reported having significantly more friends than younger people. Differences by education were irregular; and lowest income respondents again reported having fewer friends, as in 2000. Also like the 2000 results, divorced and never married people reported notably more friends. As in 2000, whites and males reported significantly more friends than women or minorities.

As with time with friends, Internet users reported having slightly (less than one) more friend than nonusers, which is far from a significant difference—as was true in 2000.

Number of Neighbors: As in 2000, older respondents reported knowing more neighbors than younger respondents, and the 2001 results were closer to monotonic—from under seven neighbors for those under age 25 to more than 14

**TABLE 2: DIFFERENCES IN 2001 UCLA SOCIABILITY BEHAVIOR QUESTIONS BY
DEMOGRAPHIC FACTORS AND INTERNET USE**

	Household Socializing	Number of Friends	Friends Socializing Time	Number of Neighbors
TOTAL SAMPLE	24.7 Hrs	10.6 Friends	8.6 Hrs	10.3 Neighbors
Age				
18-24 (106)	-2.4	-.3	2.8	-3.6
25-34 (335)	2.7	-2.1	-.5	-2.7
35-44 (389)	-.4	-2.0	-1.3	-.7
45-54 (349)	-3.5	-.9	-.5	1.2
55-64 (231)	-.6	3.1	1.1	1.7
65+ (260)	5.1	4.7	.8	3.8
Correlation	.14 --> .13 Sig	.20 --> .23 Sig.	.14 --> .12 Sig.	.19 --> .17 Sig.
Education				
High School Inc. (158)	.2	1.2	-1.2	-2.2
HS Grad (636)	-.5	-.9	.9	-.1
Some College (980)	.9	.6	.4	1.3
College Grad (314)	.2	.5	-.7	-.2
Grad School (180)	-1.5	-.7	-1.7	-.5
Correlation	.05 --> .04 NS	.06 --> .07 NS	.09 --> .09 Sig	.06 --> .07 NS
Income				
\$0-29K (511)	1.3	-2.0	-.6	-2.0
\$30-49K (380)	-1.1	1.3	.9	-.5
\$50-69K (291)	.6	.6	-.2	.7
\$70-99K (205)	-.9	.5	1.4	.5
\$100+K (186)	-1.0	.6	-.4	1.4
No Data (169)	.3	.6	-1.2	3.0
Correlation	.06 --> .05 NS	.08 --> .10 Sig.	.09 --> .08 NS	.11 --> .10 Sig
Marital Status				
Married (1004)	.7	-.8	-1.3	.5
Divorced (210)	5.6	2.8	.6	-1.9
Separated (38)	4.7	-1.4	.6	-2.0
Widowed (145)	-7.5	-3	1.7	-.2
Never Married (341)	-6.2	1.0	2.4	-.1
Correlation	.14 --> .15 Sig.	.12 --> .11 Sig	.17 --> .15 Sig	.11 --> .06 NS
Race				
White (1358)	.7	.6	.2	.9
Black (185)	-1.9	-1.8	-.6	-3.4
Other (185)	-2.8	-2.1	-1.2	-2.6
Correlation	.12 --> .12 Sig	.13 --> .10 Sig	.06 --> .06 NS	.15 --> .12 Sig.
Gender				
Men (765)	-2.6	1.0	1.0	-.5
Women (978)	2.0	-0.8	-.8	4
Correlation	.11 --> .11 Sig	.12 --> .11 Sig.	.12 --> .11 Sig.	.02 --> .03 NS
Internet Use				
None (549)	-.7	-.5	-.3	1.2
0.1-1.9 Hrs (385)	-.2	0	-.7	.4
2-4.9 Hrs (286)	-.2	.7	.8	-.3
5-9.9 Hrs (249)	-.5	-.2	-.2	-1.1
10+ Hrs (270)	1.2	.5	1.4	-.8
Correlation	.04 --> .02 NS	.04 --> .03 NS	.08 --> .07 NS	.08 --> .07 NS

neighbors among those 65 and older. Knowing neighbors was unrelated to education, but more affluent respondents reported knowing significantly more neighbors; divorced and separated respondents reported knowing fewer neighbors. As in 2000, whites reported knowing more neighbors than minorities. Gender differences were again minimal.

In the UCLA 2001 survey, Internet nonusers reported knowing more neighbors, particularly more than heaviest Internet users. This difference of about 2 neighbors known, however, was not significant.

IN SUMMARY

Not one of the nine behavioral indicators of socializing in Tables 1 and 2 is statistically significant in its relation to Internet use. Moreover, of the differences that are found, there are about as many for which it is the Internet *nonuser* who emerges as less socially active once other predictors are held constant using MCA. Thus, the simple initial bivariate conclusion of no difference between Internet users and nonusers (or between heavy vs. light users) in the earlier UCLA reports of bivariate results continues to hold after more intensive statistical analyses is performed; much the same is true for the conclusions in the previous article. This stands in marked contrast to the results for the subjective sociability variables discussed next.

SOCIABILITY ATTITUDES

The UCLA surveys have also included a number of attitude questions related to social life. These are shown in Section 2 of Appendix A for year 2000. Only about half of the attitude questions in 2000 were repeated in 2001; however, factor analyses (noted with asterisks in Appendix Section 2 for year 2000) reveal somewhat parallel content inherent in the social attitude dimensions of the two studies, such as feelings of friendship, shyness, negativity and isolation.

Year 2000 (TABLE 3)

Table 3 shows values on the two antisocial dimensions in the 2000 study and a general scale that combines both of them. Higher scores indicate higher expressions of negative social attitudes. The alienation scale is made up of nine items, which include statements like "You're left out of things going on around you," "More and more you feel helpless," and "These days a person doesn't know who to count on." The shyness scale is made up of four items, such as "You are a shy person" and "No one really knows you well." All items are on a five-point Likert agree-disagree (1-5) scale so that scores range from 9 to 45 on the alienation

**TABLE 3: DIFFERENCES IN UCLA YEAR 2000 SOCIABILITY ATTITUDE QUESTIONS
BY DEMOGRAPHICS AND INTERNET USE**

	Alienation	Shyness	Negativity
TOTAL SAMPLE	<u>26.8</u>	+ <u>3.6</u>	= <u>30.4</u>
Age			
18-24 (185)	-.5	-1.0	-1.4
25-34 (445)	.3	0	.2
35-44 (398)	.1	-.1	0
45-55 (370)	.4	.7	.9
55-64 (221)	-.2	-.3	-.4
65-74 (270)	-.6	.2	-.4
Correlation	.06 --> .05 NS	.08 --> .13 Sig	.06 --> .08 Sig
Education			
HS Inc. (165)	2.5	1.2	3.7
HS Grad (687)	1.1	.5	1.6
Some College (508)	0	-.2	-.3
College Grad (340)	-1.9	-.8	2.7
Grad School (169)	-3.1	-1.0	4.1
Correlation	.35--> .24 Sig.	.24--> .20 Sig.	.35 --> .26 Sig.
Income			
\$0-149K (249)	2.4	.6	3.0
\$15-49.9K (847)	.2	0	.3
\$50-99.9K (484)	-.9	-.2	-1.2
\$100K+ (139)	-1.5	-.2	-1.8
NA (145)	-.3	-.4	-.7
Correlation	.30 --> .17 Sig.	.17 --> .09 NS.	.28 --> .16 Sig.
Marital Status			
Married (988)	.2	0	.1
Divorced (207)	-.1.0	-.2	-1.2
Separated (40)	.5	-.2	.2
Widowed (168)	.6	-.3	.4
Never married (375)	-.5	.2	-.1
Correlation	.11 --> .07 NS	.05 --> .05 NS	.10 --> .06 NS
Race			
White (1528)	-.3	-.2	-.5
Black (160)	2.5	.6	3.2
Other (176)	.9	.9	2.0
Correlation	.17 --> .12 Sig.	.13 --> .11 Sig.	.17 --> .14 Sig.
Internet Use			
None (657)	+1.0	.2	1.2
0.1-1.9 Hrs (245)	0	.2	.2
2-4.9 Hrs (277)	-.3	-.1	-.4
5-9.9 Hrs (265)	-.9	-.1	-1.0
10+ Hrs (420)	-.9	-.2	-1.1
Correlation	.24--> .11 Sig.	.14 --> .05 NS	.24 --> .11 Sig.

scale, with the average score being 27. That means that respondents almost equally agreed and disagreed with these nine items. While the shyness scale items were statistically distinct from the alienation scale items in the factor analysis, the two scales correlated .52 with each other and show common relations with education, income and other background factors in Table 3. That is the rationale behind using the combined alienation + shyness scale in the third “negativity” column.

In terms of the larger alienation scale in the first column of Table 3, it can be seen that both show middle-aged people to report slightly more alienated (less sociable) attitudes, with youngest and oldest respondents reporting insignificantly more sociable attitudes. It is education and income, however, that are the major predictors of more positive/sociable attitudes—and that positivity is clearly monotonic—that is, more sociable responses increase regularly with increasing education and affluence. As might be expected, alienation is higher among divorced people, but not significantly so. It is also significantly higher among blacks than whites, and less so for other minorities.

Interestingly, and in contrast to the behavioral data in Tables 1 and 2, alienation tends to decrease regularly with increasing Internet use—again after education, income, age and race predictors are taken into account. That is a long way from demonstrating a cause-and-effect relation, but the regularity in the MCA results in Table 3 is impressive and significant statistically. There is almost a two point difference between nonusers and heaviest users in their alienated attitudes.

There is a similar consistent pattern in responses in the shyness scale items, but here the difference between Internet users and nonusers is less than half a point and is not statistically significant. Education, income and race, however, do remain significant predictors after MCA adjustment, and it is probably these factors that “explain” the originally higher shyness scores among nonusers than users. In other words, nonusers report more shy attitudes because they are less educated, less affluent and of minority background.

When the two scales are combined in the third column of Table 3, parallel but stronger patterns emerge than in the first column for alienation alone. Rather than a 1.9 difference between heaviest users and nonusers, the difference is now 2.3—although the *eta* correlation of .11 is the same as for alienation. That correlation with Internet use is lower than for the factors of education (.26), income (.16) and race (.14). At the same time, it is clear that there is a solid relation between Internet use and more positive or sociable attitudes in the 2000 UCLA data.

Year 2001 (Table 4)

The items forming the dimensions in Table 4 are different than those in Table 3, since several new attitude items were added and others dropped. However, factor analyses suggest their overall content remains similar. The three factors are defined as overall alienation (made up of seven items such as “My life is boring,” “I feel alienated,” and disagreeing that “I am satisfied with life”), uncontrollable societal change (four items like “Things are changing too fast”), and the more positive factor of friendship (three items, such as “I have a large network of friends”). In Table 4, these three main factors are treated separately and not added together into a single scale (at this stage). It is important to note that on the first two scales (alienation and change) higher agreement with the items connotes more negative social attitudes; whereas on the third friendship scale, higher scores mean more positive or friendly attitudes.

Unlike Table 3, the age differences are rather consistent on the 2001 attitude factors, with older (than age 55) people being less negative about their own lives, prospects for social change and feelings of friendship; the youngest age group (18–24) also appears low on the first alienation scale. Education differences again are most consistent, monotonic and significant, with the higher educated being steadily more positive in their three sociability orientations. Although parallel results are found among those with higher income, these relationships are not as strong or as consistent once education is taken into account. The separated and widowed again emerge as more negative than married or never married people, and minorities more negative than whites, with racial differences being especially large on feelings of friendship. Gender differences here are generally minimal.

As in Table 3, the Internet users emerge as less alienated than nonusers in general, but the differences here are less regular and less pronounced. Internet users are generally more positive socially than nonusers on all three dimensions, but positivity does not increase with increased Internet usage. The evidence relating Internet use and social negativity is thus less persuasive than in the 2000 data—despite the consistent correlations of the 2000 and 2001 attitude variables associated with education and other background demographic factors. That could be due to the different items used in the two surveys, the mind sets of the respondents in the two years—or to other methodological differences in the two surveys that would be harder to detect.

**TABLE 4: DIFFERENCE IN YEAR 2001 UCLA SOCIAL ATTITUDE VARIABLES
AFTER MCA ADJUSTMENT**

	Negative	Social Change	Friendship
TOTAL SAMPLE	<u>8.9</u>	<u>7.7</u>	<u>12.2</u>
Age			
18-24 (158)	-1.3	.4	.2
25-34 (355)	.4	.4	0
35-44 (384)	.8	.1	-.2
45-54 (349)	.6	.2	-.3
55-64 (231)	-.8	-.4	.2
65+ (260)	-.9	-.4	.3
Correlation	.08 --> .15 Sig.	.10 --> .10 Sig.	.08 --> .10 NS.
Education			
High School (167)	1.8	1.2	-1.1
High School Grad (647)	.4	.7	-.2
Some College (485)	-.1	-.3	.2
College Grad (314)	-1.0	-1.0	.5
Grad School (150)	-.9	-1.1	.5
Correlation	.22 --> .15 Sig.	.27 --> .20 Sig.	.25 --> .18 Sig.
Income			
\$0-29.9K (531)	1.0	.6	-.2
\$30-49.9K (380)	-.2	-.1	-.2
\$50-69.9K (291)	-.8	-.1	0
\$70-99.9K (205)	-.6	-.2	.3
\$100K+ (186)	-1.1	-.8	.3
Correlation	.26 --> .16 Sig.	.23 --> .11 Sig.	.21 --> .08 NS
Marital Status			
Married (1004)	-.9	-.2	.3
Divorced (217)	.2	0	-.3
Separated (38)	2.2	-1.5	-1.0
Widowed (145)	1.4	.4	-.6
Single (341)	1.3	.2	-.5
Correlation	.24 --> .20 Sig.	.13 --> .08 Sig.	.20 --> .17 Sig.
Gender			
Men	.3	-.1	-.4
Women	-.3	.1	.3
Correlation	.02 --> .06 NS	.04 --> .01 NS	.12 --> .15 Sig.
Race			
White (1372)	-.2	-.1	.2
Black (187)	.4	-.1	-.9
Other (48)	1.0	1.0	-.8
Correlation	.13 --> .14 Sig.	.11 --> .13 Sig.	.19 --> .18 Sig.
Internet Use			
None (563)	.7	.5	-.4
0.1-1.9 Hrs (389)	-.5	-.3	0
2-4.9 Hrs (290)	-.1	-.2	.3
5-9.9 Hrs (174)	-.2	-.6	.1
10+ Hrs (211)	-.5	0	.5
Correlation	.17 --> .09 Sig.	.18 --> .10 Sig.	.21 --> .13 Sig.

CONCLUSIONS

In this simplified multivariate analysis, there is little consistent evidence tying Internet use with lower frequency of social behavior in either 2000 or 2001 surveys. That is consistent with earlier conclusions in UCLA reports with results on only bivariate relations—and with the conclusions reached by Coget et al. in the previous article.

Overall, however, there is little question that Internet users have more positive social attitudes than nonusers, even if positivity does not increase consistently among heavier Internet users. Indeed, a separate analysis simply comparing nonusers with all users indicates significantly more positive attitudes among users—even though the original differences for all three scales in Table 4 are cut in half once education, income and the other factors are taken into account.

The overall pattern is perhaps best captured when all three scales in Table 4 are summed together into a single scale. The following MCA adjusted pattern is found after all of the predictors in Table 4 (most of which are significant predictors of sociable attitudes on their own) are taken into account:

Nonusers	1.6
0.1–1.9 hrs.	-.8
2–4.9 hrs	-.5
5–9.9 hrs.	-.8
10+ hrs.	-.8

These differences are again half those prior to adjustment and again point to an overall user vs. nonuser difference—and not one that increases with increased usage. In this way, these results are not consistent with those in Table 3, showing increased positivity with increased Internet use.

That makes it more difficult to argue that Internet usage might somehow influence users to be more socially open, but it clearly suggests little relation between usage and *anti*-social tendencies. Together with the lack of behavioral evidence, then, these re-analyses of the two UCLA data sets provide scant support for the negative social orientations of Internet usage that have been alleged. Indeed, Internet users appear to express clearly more positive social attitudes and to feel less lonely.

APPENDIX
UCLA SOCIABILITY QUESTIONS—2000

1. **Behavioral Sociability Questions (Tables 1 and 2)**

Social Connection [Ask All]

Now I'd like to ask you a few questions about your contacts with friends and family.

[SKIP 69 IF LIVE ALONE]

69. **[E: SOCIAL NETWORK] During a typical week, how many hours or minutes do you spend socializing face-to-face with members of your household? **[IF OVER 70 HOURS, PROBE FOR ACCURACY] [RECORD # HOURS or # MINUTES or DK, NA, Refused]**

70. [E: SOCIAL NETWORK] How many friends outside of your household do you have that you see or speak to at least once a week? **[RECORD #]**

71. *[E: SOCIAL NETWORK] During a typical week, how many hours or minutes do you spend socializing face-to-face with friends outside your household?

72. [E: SOCIAL NETWORK] How many of your neighbors do you know by first or last name? **[RECORD #]**

73. [E: SOCIAL NETWORK] How many hours or minutes per week do you spend participating in clubs or voluntary organizations? **[RECORD # HOURS or # MINUTES]**

2. Attitude Sociability Questions (Table 3)

MISCELLANEOUS [Ask all]

Next, some questions on your leisure activities and your opinions on a variety of social issues . . .

77. * Please tell me how much you agree or disagree with each of the following statements. Use a scale of 1 to 5 where 1 means strongly disagree and 5 means strongly agree

[ROTATE. READ EACH. RECORD ___ or DK, NA, Refused]

Factor	1	2	3	4	5	DK	RF
A-AL You're left out of things going on around you	1	2S	3	4	5	6	7
B-AL Most people with power try to take advantage of people like yourself	1A	2	3	4	5	6	7
C-IA You wish you had more confidence in social situations	1	2S	3	4	5	6	7
D-AL The people running this country don't really care what happens to you	1A	2	3	4	5	6	7
E-IA In general, you are a shy person	1	2S	3	4	5	6	7
F-LS Your life could be happier than it is now	1	2	3	4	5H	6	7
G-LS Most of the things you do are boring or monotonous	1	2S	3	4	5	6	7
H-LS You have gotten more of the breaks in life than most of the people you know	1	2	3	4	5H	6	7
I-LO You feel outgoing and friendly	1	2S-	3	4	5	6	7
J-LO You feel you have a lot in common with people around you	1	2	3	4	5	6	7
K-LO You feel no one really knows you well	1A	2S	3	4	5	6	7
M-S Government should allow undesirable content on the Internet	1	2	3P	4	5	6	7
N-S People should be able to express their own opinions even if they are harmful or offensive to members of other religious or racial groups	1	2	3P	4	5	6	7
O-S Adults should be allowed to purchase explicit pornography [ONLY ASK IF RESP 16 OR OLDER]	1	2	3P	4	5	6	7
P-PR You are very concerned today about threats to your personal privacy	1A	2	3	4	5	6	7
Q-LU The world is becoming too dependent on computers	1A	2	3	4	5	6	7
R-PO More and more, you feel helpless in the face of what's happening in the world today	1A	2	3	4	5	6	7
S-PO The average citizen can have influence on government decisions	1	2	3	4	5	6	7
T-PO People like you can change the course of world events if they make themselves heard	1	2	3	4	5	6	7
U-AN In spite of what some people say, the lot of the average person is getting worse, not better	1A	2	3	4	5	6	7
V-AN These days a person doesn't really know whom he or she can count on	1A	2	3	4	5	6	7
W-AN Most people really don't care what happens to the next fellow	1A	2	3	4	5	6	7
X-LU Human error is more likely than computer error	1	2	3	4	5	6	7

A—Alienation item (in Table 3)

P—Privacy

S—Shyness item (in Table 3)

H—Happiness